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ABSTRACT

Specified in this master plan are many facets of the environmental problem-solving process which help depict Florida's concern for its environment. This concern to preserve the riches of its natural resources and beauty has resulted from rapid growth and development necessitating the need to control and improve the quality of the environment. Components of the plan are spelled out under the following topics: (1) The Present Status of Environmental Education in Florida, (2) Statement of Goals and General Procedures, (3) Organizational Structure for Implementing the State Plan, (4) Curriculum Development Policies, (5) Preservice and Inservice Teacher Training, (6) Selection of Model Projects for Pilot Study, and (7) Implementation: The Florida Exemplary Environmental Education (Mini-Grant) Program. (DT)

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FLORIDA MASTER PLAN AND ACTION GUIDE FOR ENVIRONMENTAL EDUCATION

REPRINT

FLORIDA MASTER PLAN

ENVIRONMENTAL EDUCATION

DEPARTMENT OF EDUCATION
FLOYD T. CHRISTIAN, COMMISSIONER
Division of Elementary & Secondary Education
Bureau of Environmental Education
Tallahassee, Florida

This reprint of a public document was promulgated at an annual cost of $126.77 or $.31 per copy to provide a master plan for the development of a state program in environmental education.

Rev. 2/25/74

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FOREWORD

Unquestionably, Florida is blessed with more inherent natural assets of land and water, wildlife and climate than exists in similar combination anywhere else in the United States. With this rich legacy of natural resources and beauty at its command, Florida truly possesses an abundance of scenic gifts for all to enjoy. Why, then, is there cause for concern?

The major environmental problem areas encountered by this generation are reflected in the rapidly accelerating growth and development patterns of the nation at large. Communities in all parts of the country today are beset by environmental problems brought on by technological changes and urbanization. Clearly this is a national dilemma, but the need to control and improve the quality of Florida's environment is made more urgent because of its rapid growth and development; the two are inseparable. These effects are more serious to this state because of the importance of its outdoor environment to the people and the economy.

Florida's environmental problems are national news. The water problems of the Everglades National Park, drowning deer in the everglades, the super-jet-port issue and its fantastic population growth are known throughout the United States. Many people see Florida as a microcosm in which the problems and future of our nation and our world may be observed.

These facts along with Florida's abundant university talent, innovative educational systems, and legislatively proclaimed interest in environmental education makes Florida the ideal educational laboratory to pursue the answers to those environmental problems now seen as endangering the future of all.

THE PRESENT STATUS OF ENVIRONMENTAL EDUCATION IN FLORIDA

THE PRESENT STATUS OF ENVIRONMENTAL EDUCATION IN FLORIDA

Prior to the formulation of this master plan, a survey was conducted to determine the quantity of local environmental education programs operating in Florida. This survey was initiated in August, 1970, when a survey instrument was mailed to all district superintendents. Information requested concerned project objectives, resources, programs, and evaluation procedures. Each superintendent was also requested to designate one person in his district as a contact with assigned responsibility for disseminating environmental education information within that district. The names of those designated are included in a state directory of persons responsible for environmental education.

A memorandum to all Deans of Colleges of Education of Florida's state supported universities requested identification of research projects in environmental education or courses on environmental education offered in each university.

Investigation revealed that sixteen projects in environmental education have been funded in Florida under the Elementary and Secondary Act since the inception of Title III. The projects that are or were funded by Title III and are operational on April 1, 1974 are:

Curriculum Modification through Environmental Studies
Martin County Schools
Environmental Science Center
Indian River Drive
Jensen Beach, Florida 33457

Interdisciplinary Environmental Education
Broward County Schools
3600 S.W. College Avenue
Ft. Lauderdale, Florida 33314

Environmental Field Studies Program
Lee County Schools
2266 Second Street
Ft. Myers, Florida 33901

Environmental Sensitivity Project
Escambia & Santa Rosa Counties
P.O. Box 1470
Pensacola, Florida 32502

Broad Spectrum Environmental Education Program
Brevard County Schools
705 Avocado Avenue
Cocoa, Florida 32922

Environmental Learning Laboratory
DeSoto County Schools
c/o DeSoto County Middle School
Arcadia, Florida 33821

The survey results were tabulated by district and provide information on projects supported by local and federal funds. From this tabulation information is available which identifies projects by title, a program description, the name of the project director, the grade levels served, and the number of student participants. A summary reveals that over 150,000 students in twenty-nine counties are being served. In addition many courses in science, biology and social studies which are environmentally oriented are being offered, but were not classified as projects.

Generally, the projects described have not been evaluated as to effectiveness, but selected ones have been evaluated through the examination of guides developed and through on site visitations; the following are described as outstanding examples of the potential for environmental education in Florida.

Marine Science Station, Citrus County

The purpose of this center is to add to and enrich the educational and cultural opportunities of the area through an emphasis on natural environments, the marine environment in particular.

Throughout the year groups from kindergarten through the university level and various adult groups visit the Marine Science Station for one-day field trips. These short trips serve to introduce visitors to the marine environment and to stimulate interest in the environmental sciences. Students also collect organisms for further study when they return to school.

The basic program during the academic school year consists of conservation camp visits by intermediate pupils. An intermediate class, with the homeroom teacher, spends a full week at the station studying aquatic, estuarine and marine environments, astronomy, geology and meteorology. Art and social activities are also a part of the regimen.

During the summer students from the seven counties participate in a unique type of summer camp. During week long visits to the center, students are involved in a program of intensive study of aquatic, estuarine and marine biology through daily field activities, laboratory analysis and independent study.

Nature's Classroom, Hillsborough County

This project was designed to utilize the outdoor environment as a tool for enriching, vitalizing, and complementing the content areas of the regular school curriculum through firsthand observation and participation in real life situations in the natural and man-made environment.

During the school year approximately 10,000 sixth graders are provided a week of daytime exposure to a schedule of outdoor experiences with

practical educational value. Overnight stays are arranged for fourth and fifth graders from model cities. The project also serves Head Start, Follow Through, migrant school children, and selected project classes on field trip or special assignment basis.

The program consists of individual and group participation in mathematics, social studies, language arts, general science, creative arts, water safety, camping, survival, and lifetime sports. Emphasis is placed on water, air, ground and noise pollution. The program anticipates the implementation of elementary astronomy in conjunction with overnight stays, and marine biology upon securing suitable sites for the erection of laboratory facilities. Students perform and demonstrate in actual practice many of the academic facts and principles abstractly presented in regular classrooms. The program also provides inservice training for classroom teachers.

Environmental Field Studies Program, Lee County

The primary objective is to develop appropriate curricula for elementary and secondary school students which will create an environmentally aware citizenry who will be able to assess and act upon real issues and problems. Students, particularly on the secondary level, are engaged in field studies programs which provide for student investigation into the fields of pollutant chemistry, waste recycling, solid waste disposal and other environmental improvement projects. Students are engaged in independent research projects and have organized a Political Action Council to study the political aspects of environmental problems and to suggest appropriate action. The program includes field trips using a marine science mobile lab, development of off campus environmental

centers, a teacher training program, development of an environmental curriculum, a student ecological council and a community sponsorship program.

Environmental Education Program, Dade County

The project objectives are the implementation of a school interdisciplinary approach to environmental education, implementation of a training program for teachers to improve their knowledge and skills in this area, and establishing communication and cooperation between school and community on environmental issues. Elements of the program include a Marine Science Day Camp, outdoor education centers, "South Florida Environmental Science Media Productions"; 52 videotapes, films, film strips and audiotapes. Accompanying learning activities packages and ecology guides are developed around four themes: (a) survival and adaptation, (b) interaction and interdependence, (c) variety and pattern, (d) continuity and change. The program also includes staff development courses (Marine and Land Ecology), a bibliography of people and places important to environmental studies, film and videotape of public relations releases (1 complete, 4 in process), and a course on Ecology currently being taught in the high schools.

Environmental Sensitivity Project, Escambia & Santa Rosa Counties

This program seeks to make ecology a vital and effective part of the curriculum through the establishment of training and experiences in environmental education for second and fifth grades. The program includes an inservice workshop for teachers, year-round assistance to teachers in

planning field trips for the study of ecological conditions, prepared field trip areas, a natural history museum and an environmental education resources center.

In summary, findings indicate that many good things are being done on the local level. Varied approaches to environmental study are being pursued. Outdoor education facilities are available in some areas. Courses in environmental problems are being added to high school curricula. Projects involving the school and the community have developed. Field studies are being conducted utilizing a local problems approach, and departments are restructuring their curricula so that it is environmentally oriented. Yet, activities in the field have been fragmentary and there is no complete school program, K-12, which has adopted the comprehensive philosophy of environmental education. It is the primary objective of the master plan to create in the most efficient and effective way possible a uniform program of excellence in environmental education for Florida.

STATEMENT OF GOALS

AND GENERAL PROCEDURES

GOALS OF ENVIRONMENTAL EDUCATION FOR FLORIDA

To develop an environmental education program for Florida, the following goals and procedures have been outlined:

Goals

To provide optimum conditions for the development of a citizenry which:

Recognizes the earth's biosphere as its environment.

Recognizes mankind as a part of a system made up of people, culture and man's physical and natural surroundings.

Appreciates its environment as a living life support system.

Accepts the responsibility for the present condition of its environment.

Appreciates man's ability to control, use, preserve and destroy his environment.

Responds to economic and political forces, social pressures and cultural value systems with sound constructive environmental decisions

Objectives

Some objectives of a suggested state environmental education program are to use the resources of the Florida school systems, the relevant state agencies, and the concerned private organizations to provide experiences inside the classroom and at available outdoor teaching areas to produce students who:

Perceive the natural world as a complex system.

Understand that if the natural world is to function properly, then all of its parts must function properly.

Conceive of the natural world as an ecosystem or life support system with many living parts.

Recognize that diversity is necessary if the ecosystem is to function properly.

Appreciate the fact that all materials in nature which can be recycled must be and used over and over again. Materials now considered wastes must be reused if future generations are to have the necessities of life.

Recognize that man is adapted to live in the natural world. Inherited traits make man totally dependent on an essentially natural world.

Think of man as a biological organism with the same basic needs as almost all other living creatures.

Comprehend man's dependence on the biological organisms which make up the living life support system of the earth for his own health and happiness.

Use resources with the attitude that man can damage and ultimately destroy the environment which sustains his own life.

Recognize that man's morality demands the right for any species of living creatures to exist in a suitable habitat.

Understand that urban man's production of art, literature, music and recreational programs is sufficient evidence of the therapeutic effects of natural environments.

Perceive that a sense of awe, wonder and appreciation of his natural surroundings is an essential part of most of man's theological guidelines.

General Procedures

In preparing a state plan for environmental education, the three critical elements of an environmental management program are used as guidelines:

ELEMENT I - Inventory Present Resources

Conduct survey(s) of counties to establish scope and content of existing efforts in environmental education. *Use questionnaire(s) letters, consultants.*

Conduct survey(s) of teacher training courses presently geared to environmental education. *Consult with state universities.*

Appoint liaison in each county. *Select interested individuals who have experience in environmental education and have the capacity for program development.*

Hold conferences for persons presently operating environmental education projects. *Request suggestions as to how state consultant can be of most assistance to local programs. Seek local contributions to state program. Begin development of specific objectives.*

Publish a newsletter. *Schedule printing as needed.*

ELEMENT II - Prepare Wise Management Policies

Prepare goals and objectives for environmental education. *Complete goals and objectives by January. Refine these at conferences in January, February and March; have available for trial use with feedback by April.*

Establish regional inservice teacher training programs. *(1) Prepare suggested syllabus and narrative descriptions of courses to be offered by universities during the summer through the facilities of Continuing Education, (2) Disseminate information regarding courses to be offered as part of the regular program at the various Florida universities by fall.*

Distribute introductory materials which also contain specific suggestions for teaching about the environment. *(1) Provide copies of pertinent, selected articles, pamphlets, etc. to supervisors, department chairman, classroom teachers; e.g., "Pollution Problems and Mathematical Exercises," "Teaching the Environment in Context," "Structuring an Environmental Education Program." (2) Develop color slide program using an outdoor area in environmental education, for use by universities and county supervisors. (3) Publish an annotated bibliography of free environmental education materials available from state agencies in the spring of 1972. (4) Prepare curriculum guide, K-6, and have available for field testing by September, 1973. Hold curriculum conference in summer, 1973, for completion of this guide. (5) Publish teacher guide to environmental education by 1974. Hold curriculum conference in summer, 1974, for development of this guide.*

Stimulate university interest in developing an adequate teacher education program in environmental education. *(1) Complete comprehensive draft of proposed courses. (2) Review courses, summer conference, 1973.*

Prepare model inservice workshop plan which can be incorporated into district master plans. *Develop workshop plan through cooperative effort with districts.*

Provide environmental education resource materials, information, and an outdoor environmental education facility to service four districts. *Establish four offices, each having an audio-visual facility and an outdoor teaching area, to serve designated regions. Each center would have one full-time environmental specialist to assist counties in the region.*

ELEMENT III - Promote Public Cooperation

Coordinate development of non-credit, public service courses. *Assist established organizations such as the Audubon Society, Issac Walton League, etc. and counties in presenting courses designed to heighten awareness of environmental problems.*

Conduct an extensive public speaking campaign. *Accept invitations for the consultant and appropriate representatives to speak throughout the state.*

ORGANIZATIONAL STRUCTURE

FOR IMPLEMENTING STATE PLAN

ORGANIZATIONAL STRUCTURE FOR COORDINATING THE

ENVIRONMENTAL EDUCATION PROGRAM

Although many good local programs of environmental education have been instituted, in many instances the efforts have been fragmented and there is a noticeable lack of coordination of endeavors among the many conservation and education groups which are involved.

Presented below is a suggested organizational structure for coordinating an effective program of environmental education. Many parts of the suggested structure are already in operation, but full implementation will make the wisest use of available educational facilities. Where appropriate facilities are lacking, alternate means to achieving the desired program are recommended. The entire plan attempts to give greater emphasis to environmental education through the full cooperation of all agencies and organizations, both governmental and private, interested in the environment and through greater coordination of their activities.

I. The Department of Education

A state-wide approach should begin with the chief administrative officer of the Department of Education of Florida.

A. Commissioner of Education

The Environmental Education program will be developed and administered by the Commissioner according to policies developed in conjunction with the Advisory Council for Environmental Education.

B. Bureau of Environmental Education

A Bureau of Environmental Education within the Division of Elementary and Secondary Education staffed by six professional environmental education consultants with training and experience in education

and ecology has been established to actively guide the development and implementation of a concept of environmental education more comprehensive than that pursued in the past. The program responsibilities of the Bureau of Environmental Education include:

1. Establishing the goals to be sought in an environmental education program.
2. Determining how our existing resources can be used in pursuit of these goals.
3. Coordinating the efforts of the various disciplines within the educational system that are concerned with environmental education.
4. Developing and distributing instructional materials for use in environmental education.
5. Developing evaluation instruments to assess effectiveness of existing programs and identifying areas of need.
6. Developing programs of inservice teacher training in environmental education.
7. Coordinating the efforts of private organizations and governmental agencies that are concerned with environmental education.
8. Identifying and procuring grants from private foundations and federal agencies which may be used for funding an environmental education program.

C. Advisory Council

This council will be limited in size for efficiency but large enough to include persons from the public and private sector, with due regard to their interest, knowledge, and experience in academic, scientific, medical, legal, resource conservation and management, urban and regional planning, population dynamics, and information media

activities as they relate to society and its effect upon our environment. The responsibilities of the council will include:

1. Providing a channel for inventorying, reviewing, motivating and supporting environmental education.
2. Formulating and recommending state-wide policies in environmental education pertaining to:
   (a) curriculum development
   (b) teacher preservice and inservice training
   (c) evaluation of materials and programs
   (d) advice on the administration of federal, state and private funds to provide support for the initiation and maintenance of programs in environmental education, including model education programs, community education programs, and materials for distribution by the mass media.

D. Technical Advisory Committee

A Technical Advisory Committee on Environmental Education, consisting of representatives from all appropriate governmental and private agencies with a strong interest in environmental education, should be established with its primary function to advise the Commissioner of Education on the implementation of a state-wide environmental education program of action. It would serve the Commissioner of Education by gathering pertinent information, reviewing the development of the environmental education program, and recommending a course of action based on the state master plan objectives and in keeping with the policies of the Department of Education.

II. Colleges and Universities

Universities and colleges can play important roles in environmental education as outlined below.

The university engages in basic research; it supports elementary and secondary education; it engages in vocational training; it provides undergraduate instruction, professional education and advanced scientific training, formal adult education, informal education through educational television, and extension services. Because of the interdisciplinary nature of environmental education, it should be related to all these levels of endeavor.

Perhaps the most important roles the colleges and universities can play in the overall environmental education program are in providing:

(a) undergraduate education seminars that utilize interdisciplinary approaches to the study of the environment;

(b) preservice and inservice teacher education for teachers;

(c) manpower training for subprofessional roles in environmental management.

A. General Education

All students should be provided with the tools which are necessary to help in the solution of environmental resource problems. Some of the basic tools which should be provided through a general education instructional program are:

1. Understanding of our natural resources, their characteristics, status, distribution, and importance to man.
2. Ecological awareness and the resultant greater interest, awareness, understanding and respect toward man's environment.

3. Economic awareness and understanding of economic theory to better understand the role of economics in resource decisions.
4. Political awareness of the American political process at the national, state, and local level, and stress ways that the individual can be effective in helping to promote sound environmental resource decisions.
5. Problem solving ability that includes the ability to define the problem, consider alternatives and arrive at a solution based on facts.
6. Understanding that man is a part of the human ecosystem and is expected to make contributions to society according to his ability.

B. Preservice and Inservice Teacher Education:

A well trained teacher is the key to a successful environmental education program. Teachers must be instructed in the philosophical, scientific, technological and social aspects of the environmental crisis. In addition they must be given training in specific techniques of teaching environmental education at particular grade levels or subject areas. It is recommended that certification requirements be updated to meet the basic requirements in this area.

Teacher education programs should provide for the following:

1. Familiarization with natural resources and the problems and practices pertinent to local, state, regional, national and world welfare.
2. Acquisition of knowledge, and training in, the techniques of environmental education.

3. Review of available public and private programs, services, and sources of information and assistance.

4. Training in communication skills which will enable teachers to assist students to acquire knowledge relative to conservation principles and concepts.

5. A review of the literature regarding theories of learning and instruction that apply to the formulation and implementation of an environmental education program.

6. Training in techniques of integrating environmental education, concepts into varied subject matter areas.

7. Outdoor and field experiences utilizing a problems approach.

C. Employee Training in Environmental Management

By 1980 government at all levels and many private sources will have spent billions of dollars for physical facilities concerned with pollution control and resource depletion. Factories, laboratories, and research stations dealing with the environment and the nation's health are, as a whole, currently inadequately staffed. Unprecedented efforts will be required merely to keep up with, let alone overtake, the effects of population growth, the decline in resources, and the expansion planned for coping with problems of water supply, waste water treatment, solid waste management, and air pollution control. In public and private sectors additional manpower must be trained in fundamental environmental management skills.

Universities and community colleges will be expected to train environmental manpower at the professional and technical levels. (The

professional level including persons having B.A., B.S., or higher degrees. Those at the technical level will usually be classified as technicians with a two year associate degree.) The interrelatedness of environmental problems means a departure from the rather narrow areas of specialization found in much technical schooling. It would appear that there must be a systems approach to interrelated problems. This would mean changing from an occupationally centered curriculum to a process centered curriculum. This would imply that individuals trained in such programs would receive broad training such as to warrant referring to them as "interchangeable technicians." Technical and financial assistance may be provided for environmental manpower training programs through the following agencies:

Federal Water Quality Administration

Department of Health, Education and Welfare (MDTA)

Department of Health, Education and Welfare (Environmental Health Service)

National Air Pollution Control Administration

Responsibilities in this area include:

1. Development of estimates of the environmental manpower supply, vacancies, needs, and production.
2. Collection of data on staffing levels necessary to attain a determined level of environmental quality.
3. Production of workable models for providing manpower demand and supply.
4. Devising workable models for predicting manpower demand and supply.

5. Improving the quality and quantity of training and research.

6. Deepening interrelationships in cooperative research and curriculum development.

III. Elementary and Secondary Schools

Without the cooperation and support of the district school administration there is little chance for an active and successful environmental education program. Through the appointment of people on the local level to be responsible for disseminating environmental education information, the district superintendents have indicated an initial desire to be cooperative in the establishment of environmental education programs. Continued communication and guidance is imperative in order to gain enthusiastic support and to ensure that the comprehensive philosophy of environmental education that has been envisioned will be understood on the local level. At the elementary and secondary levels the trend in environmental education has been to integrate environmental education into the existing curriculum and to utilize the local environment and community resources to teach about the environment. The Department of Education will have the responsibility to develop the conceptual framework within which the local projects may work. Following the identification of key concepts that should be developed at every grade level and providing information on materials and programs that utilize these concepts, the responsibility for the adaptation of these concepts to the local environment should be the responsibility of the local school district. In adapting a program to meet specific needs, the people responsible for environmental education at the local level should focus attention on the following projects:

1. Development of a philosophy and structure for the program.

2. Become familiar with existing instructional material relevant to environmental education.
3. Identify community resources, both physical and human, to serve the program.
4. Develop environmental study areas.
5. Develop a series of suggested environmental encounters appropriate to the locality.
6. Assist in the development and distribution of instructional materials.
7. Arrange inservice teacher education programs.
8. Train citizens of the community to serve the program.
9. Promote the environmental education program through the P.T.A. and other community organizations.
10. Evaluate the effectiveness of the program in achieving its objectives.

IV. Governmental and Private Agencies

The numerous conservation agencies throughout the state that are involved in some phase of conservation work can make a valuable contribution to the development of an environmental education program. Governmental agencies, both on the federal and state levels, can contribute immeasurably to the success of the program. Many private non-profit organizations devote time and effort to conservation activities. Private industry has become increasingly interested in helping promote wiser use of natural resources.

The State Planning Council attempts to coordinate the activities of those state agencies involved in the area of natural resources. This is valuable not only in providing a directory of agencies and their activities for

reference purposes, but also in avoiding unnecessary duplication of effort.

Governmental and private agencies and organizations may make valuable contributions to developing a state environmental education program by providing the following types of services:

1. Personnel--resource people ranging from nature specialists to technicians.
2. Materials--free and inexpensive teaching aids and handouts on various topics, including films.
3. Sponsoring conservation activities and projects both in school and as extra curricular activities.
4. Stimulating interest and awareness in environmental education through community leadership.
5. Coordinating community conservation programs.
6. Promoting adult education in environmental areas.
7. Assist in vocational educational endeavors in the areas of environmental management.

CURRICULUM DEVELOPMENT

POLICIES

CURRICULUM DEVELOPMENT

There is a primary need for the development of a state environmental education program which focuses on the sociological aspects of the environment. Such a program cannot be tied to a textbook nor suffer the inadequacies inherent in textbook courses of study, instead it must be flexible and current. Students must learn to deal with real situations. The school must become sensitive to the community and its needs and its desires for a quality environment. The outcome must be an educated, action oriented populace that is knowledgeable about the environment and motivated to seek realistic solutions to its problems.

The area of curriculum development should be guided by the following principles:

A. The environmental education program will span the curriculum, K-12, using a conceptual approach that will provide continuity and progression.

B. The environmental education program must, by its very nature, employ an interdisciplinary approach linking the subject areas most closely related, particularly science and the social sciences, but including art, literature, and other disciplines.

C. The environmental education program will be integrated into the existing curriculum rather than being a separate course. The environment should become a tool through which we learn rather than that about which we learn.

D. The environmental education program will include environmental study areas as an essential element, giving children an opportunity to study the resources of their environment under natural conditions and to become involved in open ended explorations of their surroundings.

E. The environmental education program will stress the development of attitudes rather than the acquisition of facts. Emphasis will be placed on the development of a positive self concept among students concerning their role in society and their responsibility to wisely manage the environment.

F. The environmental education program will strive to involve the total community in the environmental education process and to enlist the aid of all agencies, both private and governmental, who share a concern for the environment.

G. The environmental education program will stress the processes of inquiry and problem solving.

H. The environmental education program will include a comprehensive preservice and inservice training program for teachers.

I. The environmental education program will be continuously involved in research to study the efforts being made elsewhere in this field, to establish pilot programs, to evaluate more accurately the outcome of existing programs, and to determine the best means of producing the change in value patterns necessary to solve today's environmental problems.

In surveying the available instructional materials, teachers should not overlook the following sources:

Textbooks and other supplementary bibliographical books

Department of Education materials

Technical books and pamphlets

Materials from government agencies

Materials from industrial groups

Locally produced instructional materials

Newspapers and periodicals

Audio-visual materials

Selecting the best available material that is useful for a particular class or grade level in any locality is a tremendous undertaking. It requires the cooperative efforts that can best be provided by an environmental education committee within the local district made up of representatives from each grade level and subject area. These representatives, upon reviewing new materials which are referred to the committee, could make recommendations concerning readability, general interest level, significance of materials in relation to the environmental education objectives of the district, suggestions concerning level where the materials would best fit in the curriculum and effectiveness of the materials.

In building a collection of usable materials the committee might also keep in mind the following criteria:

Include wide variety of materials

Present a variety of points of view

Amply cover all aspects of the environmental issue

Suitable for the class in terms of reading ability and interest level

Include resources from the fields of art, music and literature

Review of the Literature Regarding Theories of Learning and Instruction that Apply to the Formulation and Implementation of an Environmental Education Program

A recent review of the literature reveals the following points that should be considered in the formulation of an environmental education program:

A. Behaviors which are reinforced are most likely to recur. It is important that desirable behaviors be reinforced by the home, school, church, youth organizations, etc.

B. The most effective effort is put forth by youth when they try tasks which fall in the "range of challenge" -- not too easy and not too hard -- where success seems likely but not certain.

C. Youth are more likely to throw themselves wholeheartedly into any project if they themselves have a meaningful role in the selection and planning of the enterprise.

D. Reaction to excess direction of the teacher is likely to be: apathetic conformity, defiance or escape from the whole affair.

E. What is learned is most likely to be available for use if it is learned in a situation much like that in which it is to be used and immediately preceding the time when it is needed. Learning, then forgetting, and then relearning when need arises is not an efficient procedure.

F. The learning process in school ought to involve dynamic methods of inquiry.

G. Research shows little correlation between cognitive achievement and concern for values. Able students who achieve well in traditional "content-centered courses" do not necessarily demonstrate commitment to positive social goals.

H. Learning takes place through the active behavior of the student. It is what he does that he learns, not what the teacher does. The essentials of an education are the experiences provided, not the things to which the student is merely exposed.

I. One of the keys to motivation is a sense of excitement about discovering for one's self, rather than having a generalization presented by a teacher and requiring a student to prove it.

J. Attitudes may not be formed through a rational process by which facts are gathered and a reasonable conclusion drawn, but rather through the repeated exposure to ideas.

K. Helping citizens to acquire technical knowledge alone regarding an environmental problem may not increase concern for the problem.

L. Citizens are more likely to become involved in environmental issues if they are aware of how they can have some effect upon decision making.

Words suffice in a world of words, but fail in a world of things. Environmental Education deals with things, outdoor things, and as such it must include outdoor activities.

Adapted from ENVIRONMENTAL ENCOUNTERS by William B. Stapp.

PRESERVICE AND INSERVICE

TEACHER TRAINING

PRESERVICE AND INSERVICE TEACHER TRAINING

The basic goals and objectives of planned preservice and inservice teacher training are identical to those of this state plan and are listed in the section entitled, "Statement of Goals and General Procedures."

University personnel or committees charged with the development of course syllabi shall be requested to consider the following suggested guides:

A. Identify "understandings" which are a minimal prerequisite for informed citizen action regarding natural resources and the natural environment of urban regions.

B. Survey the total existing curriculum and determine the most effective way of integrating the understandings into the total school curriculum (K-12) in a manner that will provide for logical continuity and progression.

C. Give the learner an opportunity to study community natural resources under natural conditions. This will provide certain learning experiences that can not be duplicated within the school building.

D. Stress attitudes and not vocational skills. The most important conservation impact that urban youth will have upon natural resources will be through action as community citizens.

E. Emphasize local resource problems, but do not neglect state, national or international resource problems.

F. Give the learner the opportunity to play an active role in the learning process. The learner develops attitudes through personal experiences and thinking and not through the presentation of predigested conclusions.

G. Provide a comprehensive inservice training program which operates throughout the school year and is directed at helping teachers increase their understandings, interest, awareness, and teaching skills in conservation.

Inservice teacher training programs will be developed under the excellent existing state plan for inservice education. These programs shall be developed within the region they serve. Specific suggestions for the development of environmental education inservice plans are as follows:

A. Clear statement of objectives.
B. Time sequence regarding when offerings are scheduled throughout the school year.
C. Blending of community environmental experiences with indoor presentations.
D. Provision of experiences to occur on school sites.
E. Development of written material that will offer information as well as methodology.
F. Involvement of teachers at all grade levels and subject areas.
G. Promotion and publicity of local higher education offerings and scholarship programs that relate to conservation.

One model teacher training course has been developed and will be available for study by regions working on course development. Information on this model is available at the office of the Bureau of Environmental Education, 347 Miles Johnson Building, South Duval Street, Tallahassee, Florida, 32304.

SELECTION OF MODEL PROJECTS

FOR PILOT STUDY

SELECTION OF MODEL PROJECTS FOR PILOT STUDY

Four model projects are proposed as the framework for Florida's Pilot Study. These are as follows:

A. Preparation and testing of written curriculum materials, K-6, which are multidisciplinary and environmental in scope.

B. The presentation and testing of specific field activities structured to produce the attainment of specific ecological environmental objectives, (K-6).

C. The preparation and testing of a film series on Florida's ecology. This series will be aimed at the fourth and fifth grade levels and will portray Florida's principal habitat areas and their significance to the entire state and nation.

D. The preparation and testing of case studies on Florida environmental issues. These will be issues which are or have been national news and which have produced quantities of testimony pro and con. Citizen participation and the techniques used by citizens in participating in environmental issues will be in the framework of these studies.

These materials are to be tested in five school districts of five regions of the State of Florida. These regions may be characterized as: Southern Urban, Eastern Central Rural, Western Central Urban, Northeastern Urban and Northwestern Rural.

Analysis of the behavioral impact of these materials on students in these five regions will provide heretofore unavailable information on the state-wide impact of state plans in the area of environmental education.

IMPLEMENTATION: THE FLORIDA EXEMPLARY ENVIRONMENTAL EDUCATION (MINI-GRANT) PROGRAM

IMPLEMENTATION: THE FLORIDA EXEMPLARY ENVIRONMENTAL EDUCATION (MINI-GRANT) PROGRAM

The concept of the state mini-grant program is to apply seed money to ideas, people, and programs that will enable them to take the first steps in implementing an environmental education program or activity in their school or county that will serve as a county or state model.

In reviewing grants priority consideration is given to:

1) interdisciplinary environmental education applications.
2) programs addressing urban environmental education materials, activities, and teacher training.
3) projects that would clearly serve as district or state environmental education models.
4) direct active involvement of students, teachers, and community members in the environmental education project.
5) projects where alternative funding sources were not reasonably available.
6) individual school proposal submissions.

In addition, a rating scale is used to evaluate each project proposal with at least three reviewers rating and critiquing each proposal. The major considerations on the rating scale form are:

1) What impact will the proposal have on environmental education in Florida?
2) What impact will this proposal have on environmental education in this school or district?
3) Are the objectives clearly defined and is the budget justified in light of the objectives?

4) Can the evaluation plan measure the objectives?

5) What level of funding is recommended?

The excellent response to the environmental education mini-grant program for the 1973-74 submission substantiates the concept that there is a critical need in the State of Florida for outside school district supplemental funding for environmental education. In reviewing the 1973 mini-grant proposals it was significant to note three basic categories of grant requests.

First, in districts where no formal environmental education program exists, there were a large number of mini-grant requests to bring curriculum writing teams together for in-service training, or to develop a scope and sequence program for the district.

Secondly, proposals from districts with existing programs focused on specific critical needs that could not be funded from district sources. Examples are the Leon and Lee County proposals to develop effective teaching programs on school campuses. Other examples are the interdisciplinary study of the Miami River basin by teachers and students in Dade County and Escambia County's development of interdisciplinary field studies.

The third category of grants were submitted by individual teachers and schools. This type of proposal was a primary focus of the mini-grant program. Many teachers and schools submitted proposals to develop outdoor classrooms, special environmental programs for kindergartens, teachers writing curriculum materials for their classes and helping students teach other students.

The environmental education mini-grants will provide a two phase criteria and funding program.

Phase I consists of grants available for district mini-grant programs to fund innovative environmental education activities. The $5,000 maximum per district should still prevail.

Phase II consists of a category for teacher or individual school initiated proposals that would be funded on merit. The maximum for any single proposal should be $2,000. This would be in addition to any district proposal.

The rationale for the apportionment of Phase I and II funds is based on the review of district, individual school, and teacher mini-grants submitted in the 1973-74 year.

The mini-grant program provides funds directly to the classroom. In most districts it is the only source of funding directed at the legislatively mandated area of critical need -- ENVIRONMENTAL EDUCATION.